Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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TOPIC: Critical Care
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EFFECTS OF ACETAMINOPHEN ON OUTCOMES IN PATIENTS HOSPITALIZED WITH COVID-19

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PURPOSE: Acetaminophen acts as an antipyretic agent, inhibiting prostaglandin production in the brain. This may, in turn, lead to loss of a negative feedback loop allowing increased production of pro-inflammatory cytokines such as interleukin 6 (IL-6). Given that elevated IL-6 levels have been associated with worse outcomes in COVID-19 patients, we hypothesized that a clinical correlation exists between acetaminophen dose and outcomes in COVID-19 patients.

METHODS: We conducted a retrospective analysis of patients admitted at Washington Hospital Center between February 2020 and- June 2020. Patients older than 18 years of age, diagnosed with COVID-19 were included in the study. Those who were directly admitted to the ICU were excluded. Acetaminophen exposure was calculated using a formula for average adjusted daily acetaminophen: total acetaminophen divided by number of day's medication was administered. Groups were stratified to non-exposed and exposed. Within the exposed groups, we further divided them into moderate (100-1000 mg/day) or high exposure(>1000 mg/day). Comparison between groups for continuous variables was conducted using Kruskal Wallis test. Association between two categorical variables was tested using Fisher's exact test.

RESULTS: The cohort included 524 patients with non-exposed (n=136), moderate exposure (n=256), and high exposure (n=132) categories. Multivariable logistic regression showed that patients who were exposed to acetaminophen had a significantly higher odds of being triaged to a higher level of care [3.01 (CI 1.4-7.07 p <0.007) in moderate exposure group and 3.44 (CI 1.49-8.54 p<0.005) in high exposure groups]. Secondary outcomes included longer length of stay (5 vs 10 days, p < 0.001), higher mortality (5.1% vs 16.5% p = 0.001) and higher risk of requiring the ventilator support (2.9% vs 15.5% p<0.001) in the exposed group.

CONCLUSIONS: Previous studies have demonstrated that up to 85% of patients with COVID-19 develop fever and acetaminophen is commonly used as a treatment. Our study showed that acetaminophen exposure was associated with worse outcomes. Further studies are required to investigate this association, in particular to see if having a greater number of febrile episodes is independently associated with these same outcomes.

CLINICAL IMPLICATIONS: Acetaminophen has a widespread use in hospitals as well as in out patient setting. If true association between acetaminophen and worse outcomes in viral respiratory illness exists, there would be a significant change in current clinical practices. Physicians would have to be extra cautious while prescribing acetaminophen, given the significant risks.

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